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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,461	02/19/2004	Nick M. Miller IV	KENT 35835US1	4852

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EXAMINER	
PATEL, NITIN	

ART UNIT	PAPER NUMBER
2673	

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/782,461	MILLER ET AL.	
	Examiner	Art Unit	
	Nitin Patel	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *31-42* is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3,6-9,12,13,14,15,27-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Helgeson (U.S. Patent No. 5,530,457).

As per claims 1,27 Helgeson shows a display driver (In fig.5 element 64): a plurality of display outputs each for outputting a drive voltage to a row or a column of a display (In fig.5 providing signals to roe and columns); and a plurality of configuration bits (element 66 contains bit configuration to drive column) each having a row/column setting, wherein each configuration bit is exclusively associated with one or more of said plurality of display outputs such that said row/column setting of said configuration bit(also element 68 to drive row) is used to configure all of said associated one or more display outputs for driving either rows or columns of the display(In col.10 lines 57-67).

As per claim 2, Helgeson shows some number of said display outputs associated with one configuration bit can be configured to drive rows of the display and another number of said display outputs associated with another configuration bit can be configured to drive columns of the display independent of each other (In fig.5 individual element 64 with bit configuration).

As per claims 3,14,15 Helgeson shows at least one display output is set to drive a row of the display, said drive voltage output by said display output is set independent

of the total number of rows in the display (In fig.5 element 66 to drive specific 256 bits to certain numbers of columns).

As per claim 6, Helgeson shows each display output is uniquely associated with one of the configuration bits (in fig.5).

As per claims 7,13 Helgeson shows a plurality of driver blocks (in fig.5), each of said plurality of driver blocks including: a plurality of display outputs each for outputting a drive voltage to a row or column of a display (In fig.5 element 68 and 64 driving row and columns); and a configuration bit (In fig.5 columns driving with 256 bits configuration and rows with 1024 bit ripple) having a row/column setting, wherein said driver block is configured to drive either rows or columns of the display according to said configuration bit row/column setting, and each of said plurality of display outputs of said driver block is thereby configured to input said drive voltage to either a row or a column of the display, respectively(In col.3 lines 23-60).

As per claim 8, Helgeson shows some number of said plurality of driver blocks can be configured to drive rows of the display and another number of said plurality of driver blocks can be configured to drive columns of the display (In fig.5 elements 66).

As per claim 9, Helgeson shows at least one of said plurality of driver blocks is set to drive rows of the display, said drive voltage output by said display outputs of said at least one of said plurality of driver blocks is set independent of the total number of rows in the display (In fig.5 specific numbers of columns driving by elements 66).

As per claim 12, Helgeson shows each of said plurality of driver blocks can be set to drive either rows or columns independently of any other driver block setting (In fig.5 elements 66 and 68).

As per claims 28, 30 Helgeson shows display driver comprising: a plurality of driver blocks, each driver block including: a plurality of display outputs, each for outputting a voltage to a row or a column of a display; a configuration bit having a row/column setting; a cascade input (In fig.5); and a cascade output (output of element 66 to another input of element 66), wherein all of said plurality of display outputs of said driver block are set to drive either rows or columns of the display according to said configuration bit setting(In fig.5 elements 66), wherein each of said plurality of driver blocks can be set independently to drive either rows or columns(In fig.5), and further wherein two or more of said plurality of driver blocks can be cascaded together for driving additional rows or columns of the display by connecting a cascade input of one of said two or more driver blocks to the cascade output of another of said two or more driver blocks(in fgi.5 bottom elements 66 with multiple blocks of shift registers and latches).

As per claim 29, Helgeson shows a first display driver can be cascaded with a second display driver by connecting the cascade input of one of a plurality of blocks of the second display driver with the cascade output of one of a plurality of blocks of the first display driver for driving additional rows or columns of the display (In fig.5 top and bottom latches and shift registers cascade together).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 4,5,10,11,16-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helgeson (U.S. Patent No. 5,530,457) in view of Ruth et al., (U.S. patent No. 6,278,429).

As per claims 4,5,10,11,16,17,26 Helgeson does not show a display being bistable liquid crystal display and liquid crystal material having a planar texture and a focal conic texture that are stable in the absence of an electric field.

Ruth shows display being bistable liquid crystal display and liquid crystal material having a planar texture and a focal conic texture that are stable in the absence of an electric field. It would have been obvious to one of ordinary skill in the art, at the time of the invention was made to have incorporated the teaching of Ruth's bistable liquid crystal device with Helgeson's because it would have controlled individual columns or rows with a different voltages to control specific row or columns.

As per claim 18, Helgeson shows A display driver for driving a display, said display driver comprising: a plurality of driver blocks, each driver block including: a plurality of display outputs, each for outputting a voltage to a row or a column of a display; and a configuration bit having a row/column setting, wherein all of said plurality

of display outputs of said driver block are set to drive either rows or columns of the display according to said configuration bit setting, wherein each of said plurality of driver blocks can be set independently to drive either rows or columns, and further wherein said driver is adapted to drive a display(see above claim 1 rejection). Helgeson does not show a bistable display.

Ruth shows display being bistable liquid crystal display and liquid crystal material having a planar texture and a focal conic texture that are stable in the absence of an electric field. It would have been obvious to one of ordinary skill in the art, at the time of the invention was made to have incorporated the teaching of Ruth's bistable liquid crystal device with Helgeson's because it would have controlled individual columns or rows with a different voltages to control specific row or columns

As per claim 19, Helgeson shows one of said driver blocks has a certain number of display outputs, and further wherein another of said output blocks has a different number of display outputs(In fig.5).

As per claim 20, Helgeson shows configuration bits are implemented by using memory storage (element 66 is being a memory element).

As per claim 21, Helgeson shows each of said configuration bits is an input lead to said display driver and further wherein said setting is set by providing a voltage and/or logic setting to said input lead (in col.4 lines 41-45).

As per claim 22, Helgeson shows including a data bus input, wherein said row/column setting of said configuration bit is obtained from said data bus input (In fig.1a).

As per claim 23, Helgeson shows voltage of a display output driving a row of the display driver is independent of the total number of rows in the display (In fig.3 element 54 using specific timing circuit to control specific columns voltages).

As per claims 24,25 Helgeson shows a cascade output and a cascade input for cascading multiple drive blocks and/or multiple display drivers together (In fig.5).

Allowable Subject Matter

5. Claims 31-42 are allowed.

The prior art fails to teach or suggest A liquid crystal display device comprising: chiral nematic liquid crystal material; substrates that form there between a region in which said liquid crystal material is disposed, wherein said substrates cooperate with said liquid crystal material to form in said region scattering focal conic and reflecting planar textures that are stable in the absence of an electric field; electrodes disposed on said substrates effective to apply an electric field to areas of said region corresponding to a plurality of columns and rows; wherein incident light travels in a direction through said region, comprising a light absorbing back layer disposed downstream of said region relative to said direction of incident light; and a display driver for applying an electric field for transforming at least a portion of said liquid crystal material to at least one of the focal conic and planar textures, said display driver comprising: a plurality of display outputs each for outputting a drive voltage to one of said rows or one of said columns; and a plurality of configuration bits each having a row/column setting; wherein each said configuration bit is exclusively associated with one or more of said plurality of display outputs such that said row/column setting of said configuration bit is used to

configure all of said associated one or more display outputs for driving either said rows or said columns as claimed in claim 31.

The prior art fails to teach or suggest a reflective full color liquid crystal display device comprising: first chiral nematic liquid crystal material comprising liquid crystal having a pitch length effective to reflect visible light of a first color, second chiral nematic liquid crystal material comprising liquid crystal having a pitch length effective to reflect visible light of a second color, and third chiral nematic liquid crystal material comprising liquid crystal having a pitch length effective to reflect visible light of a third color; substrates that form therebetween a first region in which said first material is disposed, a second region in which said second material is disposed and a third region in which said third material is disposed, wherein said first region, said second region and said third region are stacked relative to each other; electrodes disposed on said substrates effective to apply an electric field to areas of said first region, said second region and said third region, corresponding to a plurality of columns and rows; wherein said substrates cooperate with said first material, said second material and said third material to form in said first region, said second region and said third region, scattering focal conic and reflecting planar textures that are stable in the absence of an electric field; wherein incident light travels in a direction sequentially through said first region, said second region and said third region, said first region being closest to a viewer, comprising a light absorbing back layer disposed downstream of said third region relative to said direction of incident light; wherein the incident light is reflected by the planar textures of said first region, said second region and said third region such that

reflected light leaving the display exhibits a color that is an additive mixing of combinations of said colors which are reflected from said planar textures, and said incident light passing through said first region, said second region and said third region is absorbed by said light absorbing back layer; and a display driver for applying an electric field for transforming at least a portion of the liquid crystal of at least one of said first material, said second material and said third material, to at least one of the focal conic and planar textures, said display driver comprising: a plurality of display outputs each for outputting a drive voltage to one of said rows or one of said columns, and a plurality of configuration bits each having a row/column setting, wherein each said configuration bit is exclusively associated with one or more of said plurality of display outputs such that said row/column setting of said configuration bit is used to configure all of said associated one or more display outputs for driving either said rows or said columns; wherein a proportion of at least one of said first material, said second material and said third material exhibits a planar texture in the absence of an electric field and a proportion of the at least one of said first material, said second material and said third material exhibits a focal conic texture in the absence of an electric field, wherein said display driver provides an electric field pulse of sufficient amplitude and duration to change the proportions of the at least one of said first material, said second material and said third material in said planar and focal conic textures, whereby the intensity of light reflected may be selectively adjusted as claimed in claim 34.

The prior art fails to teach or suggest a reflective liquid crystal display device

comprising: first chiral nematic liquid crystal material comprising liquid crystal having a pitch length effective to reflect electromagnetic radiation of a first wavelength and second chiral nematic liquid crystal material comprising liquid crystal having a pitch length effective to reflect electromagnetic radiation of a second wavelength; substrates that form therebetween a first region in which said first material is disposed and a second region in which said second material is disposed, wherein said first region and said second region are stacked relative to each other; electrodes disposed on said substrates effective to apply an electric field to areas of said first region and said second region, corresponding to a plurality of columns and rows; wherein said substrates cooperate with said first material and said second material to form in said first region and said second region, scattering focal conic and reflecting planar textures that are stable in the absence of an electric field; wherein incident light travels in a direction sequentially through said first region and said second region, said first region being closest to a viewer, comprising a light absorbing back layer disposed downstream of said second region relative to said direction of incident light; wherein the incident light is reflected by the planar textures of said first region and said second region such that reflected light leaving the display exhibits a wavelength that is an additive mixing of combinations of said wavelengths which are reflected from said planar textures, and said incident light passing through said first region and said second region is absorbed by said light absorbing back layer; and a display driver for applying an electric field for transforming at least a portion of said liquid crystal material of the liquid crystal of at least one of said first material and said second material, to at least one of the focal

conic and planar textures, said display driver comprising: a plurality of display outputs each for outputting a drive voltage to one of said rows or one of said columns, and a plurality of configuration bits each having a row/column setting, wherein each said configuration bit is exclusively associated with one or more of said plurality of display outputs such that said row/column setting of said configuration bit is used to configure all of said associated one or more display outputs for driving either said rows or said columns; wherein a proportion of at least one of said first material and said second material exhibits a planar texture in the absence of a field and a proportion of the at least one of said first material and said second material exhibits a focal conic texture in the absence of an electric field, wherein said display driver provides an electric field pulse of sufficient amplitude and duration to change the proportions of the at least one of said first material and said second material in said planar and focal conic textures, whereby the intensity of light reflected may be selectively adjusted as claimed in claim 35.

The prior art fails to teach or suggest a chiral nematic liquid crystal display, comprising: chiral nematic liquid crystal material located between first and second substrates, said material including a planar texture having a circular polarization of a predetermined handedness and a focal conic texture that are stable in an absence of an electric field; electrodes disposed on said first and second substrates effective to apply an electric field to areas of said region corresponding to a plurality of columns and rows; a first quarter wave retarder located adjacent to said first substrate; a linear polarizer located adjacent to said first quarter wave retarder; a second quarter wave retarder

located adjacent to said linear polarizer; a transflector having a reflective side adjacent to said second quarter wave retarder and a light transmitting side; a light source adjacent to said transmitting side, said light source being selectively energizeable to emit light through said transflector; and a display driver for applying an electric field for transforming at least a portion of said liquid crystal material to at least one of the focal conic and planar textures, said display driver comprising: a plurality of display outputs each for outputting a drive voltage to one of said rows or one of said columns; and a plurality of configuration bits each having a row/column setting, wherein each said configuration bit is exclusively associated with one or more of said plurality of display outputs such that said row/column setting of said configuration bit is used to configure all of said associated one or more display outputs for driving either said rows or said columns as claimed in claim 38.

The prior art fails to teach or suggest a liquid crystal display device comprising: chiral nematic liquid crystal material; substrates that form therebetween a region in which said liquid crystal material is disposed; at least one alignment surface that is effective to substantially homogeneously align the liquid crystal director adjacent thereto, wherein at least one of said substrates and each said alignment surface cooperates with said liquid crystal material so as to form focal conic and planar textures that are stable in the absence of an electric field, each said alignment surface being effective to provide at least one of the following: (a) a brightness at a wavelength of peak reflection of said planar texture that is increased by at least 5% as compared to an identical liquid crystal device but with inhomogeneous alignment surfaces, (b) the focal

conic texture with a reflectance that does not exceed 10% of electromagnetic radiation incident on the display device at a wavelength of peak reflection of the planar texture, and (c) a degree of circular polarization at a wavelength of peak reflection of the planar texture, which is increased by at least 10% as compared to an identical liquid crystal device but with inhomogeneous alignment surfaces; and a display driver for applying an electric field for transforming at least a portion of said liquid crystal material to at least one of the focal conic and planar textures, said display driver comprising: a plurality of display outputs each for outputting a drive voltage to one of said rows or one of said columns; and a plurality of configuration bits each having a row/column setting, wherein each said configuration bit is exclusively associated with one or more of said plurality of display outputs such that said row/column setting of said configuration bit is used to configure all of said associated one or more display outputs for driving either said rows or said columns as claimed in claim 39.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nitin Patel whose telephone number is 571-272-7677. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin H Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NP

May 31, 2005

VIJAY SHANKAR
PRIMARY EXAMINER